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For Edwards & Salazar (eds.)

Fields of Posthuman Kinship

Ben Campbell

There is a strong current to the contributions in this volume, and much of the kinship and genetics literature, that the issue at hand is how contemporary families are being made and talked about in the light of DNA transmission, Assisted Reproduction Technologies, and their relationship to other ‘non-natural’ means of making family members, such as adoption. This chapter questions the assumptions that kinship broadly equates with the domain of human family connections, and that ‘kinship and genetics’ concerns creative resolutions of genetic knowledge and familial contexts.

There is a strong assumption here about what kinship consists of anthropologically, as a subset of human relations tied to the domestic domain. Focusing on interpersonal family relatedness, and kinship ‘ways of thinking’, privileges genealogical modes of reckoning and evaluating relationships. Even when importance is given to active practices, which do incorporate creative makings of family and relatedness (such as naming, feeding, and rituals of belonging), these are still embedded in a framework of how individuals are conceptually accommodated in networks and registers of *human* familiarity and identity, that happen not to rely on direct genetic filiation. My argument is that kinship as a comparative enquiry needs to bring relations with non-humans into view, to explore ‘kinship’ dimensions beyond family connection. Genetic knowledge and technology reconfigures not only familial landscapes of information and reproductive choice, but also the relations between ‘the human’ and ‘the natural’. Biologists use kinship to discuss the relationship of the human genome with that of other species, and to keep this apart from social anthropologists’ use of it for differentiating conscious fields of social connection, would be to accept rather than problematize the cosmology of naturalism (Descola 2005), where biologists’ use of kinship refers to a knowable world of physical

connection common to all life forms, separate from anthropological worlds of particular cultural meanings.

Comparative kinship studies have revealed numerous ways of connecting human and non-human worlds. Whether it is cattle with the Nuer (Evans-Pritchard 1940), pigs in Melanesia (Rappaport 1979, Strathern 1988), or consanguine plants and affinal prey in Amazonia (Descola 1996), human kinship has been enfolded in wider relations with the non-human world. Urbanized Euro-American society is clearly more detached from regular non-human convivialities (pet-keeping is popular but optional), but to neglect non-human interactions in ideas of kinship would be to miss out on perspectives for thinking anthropologically about kinship and genetics. At the origins of modern kinship theory, Feeley-Harnik comments that L. H. Morgan ‘used “breed”, “cross”, “half-breed”, and “quarter-breed” as if he were talking about his family’s herd of wool bearers’ (2001:58). In the Great Lakes area, people would speak of their kinship and marriage, and be telling Morgan simultaneously of beaver kinship, in ways that ‘intimately entwined fates of human and other creatures’ (*ibid*:80). Genomic comparisons now bring the human and non-human back into relation. The uniqueness or exceptionalism of human ontology and Euro-American kinship are given new problematics by genetics, and provide grounds for thinking comparatively about how kinship cosmologically locates the human in the world. It is not just in new ways of making and thinking about families that genetics transforms understandings of kinship, but in reflection on new kinds of intentional agency in a world where the boundaries of species, and their interrelations have become subject to unprecedented kinds of human intervention.

By including non-humans in kinship perspectives, connections are made with discussions of ‘posthuman’ society. I use the British media’s response in 2003 to the scientific findings of the nation-wide investigation into likely environmental consequences of growing genetically modified crops in the UK, to claim that a relation of protective kinship between people and the non-human inhabitants of the landscape was discovered in this moment. A latent connectivity between people and environment was revealed on the verge of its irreversible conversion into a resource for biotechnological farming. If we

had thought that modern European kinship had shed any kind of extra-human cultural dependency, like the Nuer's to cattle, and only entertained metaphorical conceits in anthropomorphic narratives (from Beatrice Potter to *Bug's Life*), the prospect of genetically modified cropping systems, and the possibility of feral recombinant DNA stalking the hedgerows provoked a response of solidarity in the British media with the creatures of the countryside.

I use the term 'posthuman' to mark changes in how the human can now be talked about with knowledge of the human genome, and the use of genetics to restructure interactions with other species. The category of human and its relation to the non-human are changed by the prospect of germline engineering, and DNA transfer across lines of species and phyla. Technologically mediated reproduction evokes explicit reflexivity on the autonomy of a natural world. Reproduction has been brought out of a naturalized black box of assumed processes and contexts of control. A circumspect anthropology for the new politics of human and non-human fertility moves kinship beyond strictly internal 'human' concerns of relatedness. Novel opportunities for assisted choice in having children, and in designing the genetic agency of food crops, create a contested stage for the regulatory powers that strategically close down certain kinds of option. No longer are humans passive in the face of the genetic lottery of hereditary accident, nor are they situated at a distance from a self-reproducing realm of nature beyond human activity (Strathern 1992). It is the new configuration of possible life relations, and the move beyond the enlightenment clarity of exceptional, human conscious agency over an inert nature, that warrants the 'post' in question.

What kinship is all about

Recent attempts to recover anthropology's claims to kinship expertise have included Franklin and McKinnon's (2001) interrogation of the ways that new kinds of family relatedness are growing in contemporary processes of social change around the world, and in the face of new technological possibilities. Their overview extends from 'kinning' as a process of domesticating difference in the cultural heritage of adoptees in international adoption (Howell 2001), to the use of kinship as a term for characterising

connections with analogical resemblances to human relatedness, such as in human-machine hybrids (Helmreich 2001).

In their valuable treatment, Franklin and McKinnon have not entirely escaped an implicit curiosity for ‘what kinship is all about’ (Schneider 1984). Although they take us through a host of ‘contingent and productive’ (Franklin and McKinnon 2001:7) contexts and conceptual linkages, there remains a sense that kinship with its ‘substantial-codings’ is about an area of social enclosure, congealed through embodiment, to do with ‘shared kind’ and familial closeness. This was in previous generations substantiated by anthropologists as ‘the domestic domain’ (Goody 1976), and embraced the household, the family, and the private as a coherent relational field in opposition to the public domain, where contrasting principles of sociality and exchange could be recognized.

With structuralist exchange theory, an alternative view of the domestic was offered that started not from the primacy of descent, but from extra-domestic reciprocities in the reproduction of the domestic through ongoing affinity. The presence of the reproductive exchange relation, and the affinal other within the minimal unit of kinship, configure the domestic as already in articulation with alliances between types of difference. In the structuralist formulation non-humans figure only as elements that are good for thinking with, neglecting exchanges of less cerebral flows that bring non-humans into sociality: for instance, with life forms that respond through evolutionary domestication to our embodied relations with the world.¹

Jones argues that after hunters turned to arrows rather than spears,

Wolves – dogs as they became – became more useful as they would chase and pull down wounded prey. Such a creature took at once a large step toward the fireside... At Ein Mallah in Israel, in a grave of the earliest farmers, is the skeleton of a puppy buried next to a child. *A wild animal had become a member of the family.* Soon its muzzle shrank, its teeth

¹ ‘We too cast unconscious evolutionary votes every time we reach for the most symmetrical flower or the longest French fry’ (Pollan 2001:262).

became smaller, its eye grew large and round, and the modern dog had arrived. (my emphasis, Jones 2000: 34)

In contrast to 'kin', the terms 'family' and 'household' more readily include animal associations, as productive domestic assets, or as pets that can be seen as complementary members in families of affection - even as subjects substituting for human relatives. Against modern understandings that would restrict 'kin' only to other humans, Haraway (1997) uses kinship provocatively to place us as relational beings in an encounter with the strange productions of biotechnological capitalism. She invites us to think about the kinship we might have with them, in terms of concern for the relatedness of life, especially if we take account of their hybrid bioinformatic-lineages, and their confounding of conventional categories of being and object.

Such apparent projections of the language of kinship to the non-human, or to human-animated entities, are no longer so easily contained within the dualism of literal or metaphoric connection. Genetic knowledge, whether of human relations or modified organisms opens up areas of instability between the literal and the metaphoric. Anthropologists working in this field have charted the processes of normalisation or purification that people have shown in giving strategically conventional shape to biological facts (Thompson 2001), or have explored the pressure exercised by hybrid entities on notions of life and kinship (Helmreich 2001).

Descola (2005) offers an ambitious, comparative typology for relations between the human and non-human. In his category of modern naturalism, a cosmology that presents the world out there as a mute, physical unity is set against the species-unique quality of human conscious agency. For Descola, artificial intelligence, or the recognition of human-like intelligence among higher primates, only emphasizes the human-centric properties of this scheme. His point is to emphasize the distinctiveness of this cosmology in comparative terms, and warn against its inappropriate extension to understand the relations of humans and non-humans in other societies that 'have not hesitated to invite into the concert of their social life the most modest of plants, and the most insignificant

of animals' (my translation, 2005:15). A problem with his approach is that he compares Amazonian hunters and cultivators with the great thinkers of the enlightenment, to the exclusion of other modern co-evals, who appear in the work of Feeley-Harnik (2001, n.d.) to have furnished the foundational modern thinkers for the study of kinship (Morgan) and evolution (Darwin) with some of their most potent images, in apparent defiance of human exceptionalism. Taking kinship beyond the human, and beyond the literalism of genetic substance as defining relatedness, arguments can be made for thinking outside the cosmology of naturalism, and in terms of relational universes of intimate responsibility that cross the human/non-human divide. The prospect of displacing ecological communities and their iconic songbirds with genetically modified crops challenged vernacular, analogical relatedness across species.

Genetically Modified Crops and the Kinship of Life

To track biotechnology's relational pathways, I use kinship in a very broad sense, as a technology for the organisation of solidarities, desire and exchange, not confined to specifically human domains of reference, **[but is this justified? Or is it just that the word 'kinship' – like 'family' – is an odd job word with a range of usages? – whether it is justified depends on the success of the chapter's arguments developed hereafter]**

to analyse the British media's reception of the scientific evaluation of genetically modified organisms.

In the mounting controversy over GMOs in Europe from the mid-1990s, people gave many reasons for opposing these crops' introduction into the food chain.² These ranged from 'tampering with nature', lack of labelling information about product content for consumers, to concern about multinational control over world food supply. In terms of World Trade Organization agreements, the only legal basis for resisting GMOs was evidence of harm to human health or the environment. The British government's scientific advice suggested minimal health implications. To complement a public opinion

² For an excellent treatment of the European contexts for opposition to GMOs, see Bauer and Gaskell (2002). Wynne (2001) gives an incisive analysis of the basis for public mistrust of UK institutions intended to communicate scientific advice. Lezaun (2004) analyses the different approaches to marketing GM products and consumer research in generating scepticism about multinationals' motives.

consultation exercise held in 2003, a decision was made to examine the crops scientifically for environmental impact. 'Farm Scale Evaluations' (FSE) on over 200 farms across the country looked for three years at the effects of growing crops (modified for herbicide resistance) on the plants, insects and birds in field locations. The results were published on 16th October 2003 and were widely reported and discussed by the press.

Media reporting is obviously designed to impact on cultural nerve-endings. A notable reverence for the details of the findings as scientifically objective is apparent, but latent, analogically social readings are simultaneously emergent. Even in the de-contextualisation of the facts from public concerns about GMOs, these latent readings invoke missing relationships of people to agricultural environments. The newspapers play on an iconic cultural status of birds, with their lyrical-sounding vernacular names, and the interdependence of life forms under threat from dosings of weedkiller that, only by implication, include humans. In the public debate where socio-political arguments over the technology were hierarchically displaced by legal and scientific authority, the birds, weeds and mini-beasts can be seen to stand analogically, for human presence. All the weight of social concerns about GMOs now hung in the environmental basket.

On the 17th October 2003 the *Independent* (a centre-left newspaper) frontpage headline declared,

‘Proven: the environmental dangers that may halt GM revolution’.

The Farm Scale Evaluations confirmed

conservationists’ concerns that the GM crops scheduled for growth in Britain would mean yet another blow for the insects, flowers and birds that have been decimated by more than 30 years of intensive farming.

In its inside page report Chris Pollock, chairman of the FSE scientific steering committee drew attention to the uniqueness of this research that sought to anticipate the effects of cultivating the new crops:

It is the first time a novel agricultural technology has been trialled extensively before it has been introduced rather than us examine the consequences after it has been introduced [pdf version has “**quote here,**

not after brackets” – not of my doing as original indenting removed] (*The Independent* 17 October 2003: 4).

I will concentrate on three themes of the media reporting of the results. One is the picture of biodiversity in field ecology that emerged from the trials, the second is the consideration given to the desirability to people and society of further intensification of farming, and thirdly an issue which the trials did not address, but which most of the newspapers could not leave alone - the prospect of cross-pollination from GM crops with ‘wild relatives’.

Many newspapers presented factual findings adjacent to commentary. The Daily Telegraph (right wing) provided a ‘question and answer’ section, where ‘What did they discover?’ was answered

GM oilseed rape and GM beet damaged the environment. There were fewer butterflies, bees and invertebrates because there were 80% fewer weeds and seeds for them to eat. (*The Daily Telegraph* 17 October 2003:3).

The Guardian (centre-left) made a section ‘Birds and bees: how wildlife suffered’, itemising the different outcomes for a range of species under GM and conventional farming. A previously little researched creature the springtail, a small wingless arthropod, was one of the few species that seemed to benefit under GM oilseed rape, due to the timing of weedkiller application and the amount of decaying plant matter available to it.

The (‘establishment’) Times countryside editor described the results as painting ‘a grim picture of a landscape denuded of many farmland birds, butterflies, insects, and common field plants’, and a Royal Society for the Protection of Birds spokesman was quoted as saying, that GM crops could mean ‘the final nail in the coffin for some species’ (*The Times* 17 October 2003: 9). The tabloid, right-wing Daily Mail declared ‘farming the so-called Frankenstein crops risks creating a biological desert by wiping out wild plants, butterflies, bees and birds’ (*The Daily Mail* 17 October 2003: 6-7). The Guardian pronounced that the further deprivation of habitat and food from birds and animals would be ‘an irreplaceable loss to the countryside which once teemed with the sights and sounds of creatures on and above the ground’ (*The Guardian* 17 October 2003: 1). The editorial

in the *Independent* noted the finding that ‘Fewer weeds means fewer – and fewer varieties of – insects, and that in turn means fewer corn buntings, skylarks and yellowhammers’ (*The Independent* 17 October 2003: 20). The *Guardian* reported that governmental responses ‘were cautious’, but the Environment Minister Elliott Morley was quoted ‘GM crops had severe implications for birds’. In the chorus of doom it was left to Paul Rylott from the industry body promoting GM to argue ‘scaremongering is not supported by the facts’ and claims that the crops would ‘wipe out wildlife’ were unfounded (*The Independent* 17 October 2003: 5).

What has all this to do with kinship? Let us take ‘severe *implications* for birds’. The creatures themselves are not going to consciously deliberate the consequences of GM oilseed rape, beet and maize, but ‘implication’ and its cognates ‘imply’ and ‘implicate’ in my dictionary bring up ‘entwine together’, ‘enfold’, ‘involve’, ‘entangle’, ‘express indirectly’, and ‘insinuate’. The implications are for people to consider on behalf of the birds, in the knowledge about the likely avian outcomes of intensified applications of weedkiller in the fields. Herbicide-tolerant GMO cultivation would more efficiently convert sunlight into plant growth, to the greater advantage of human food crops against weed competition, and the wildlife that depend on the weeds. It is the human senses that register ‘irreplaceable loss’, ‘grim picture’, and the series of deprivations along the food chain from weeds through insects to birds, whose names carry cultural genealogies evocative of pastoral symphonies and Shakespearean sonnets. It is to human ears and eyes, that disappearing sights and sounds will matter. Radcliffe-Brown’s totemic question ‘Why all these birds?’ might be asked here, and as Lévi-Strauss put it ‘The connexion is not arbitrary, nor is it a relation of contiguity’ (1962:147). What kinds of extra-species solidarities, desires and exchanges are called forth in the brute demonstration of impending biodiversity decline? I will take this up later.

Faced with a decisive moment in the extent to which British field ecology should be dedicated to the cause of maximized efficiency in farming practices, priorities of culturally determined value enter the frame. The left-leaning *Mirror* tabloid newspaper used dramatic headlines to emphasize the choice, borrowing the title of Rachel Carson’s

book as its main statement 'Silent Spring', continuing with 'Birds and Bees: technology v wildlife'. The Independent's editorial writer was clear about the alternatives now presented to decision makers:

the choice comes down to enhanced yields versus reduced biodiversity.

Broadly, that is the choice that has been offered by intensive farming since the Industrial Revolution. And there has been a growing recognition in recent decades that farming policy should be tending in the opposite direction to that offered by today's genetically modified crops. The movement should be away from intensive farming and towards the preservation of biodiversity. You do not have to be a 100 per cent organic enthusiast to appreciate that the environmental costs of modern farming methods are too high (*The Independent* 17 October 2003:20)

The Guardian's account of the trial results set the government's policies for promoting biotechnology against other pledges made to protect the environment. Chief among these was the aim of reversing the loss of birdlife in the countryside, which the government had identified as a 'quality of life' indicator (meaning human life). It quoted David Gibbons (a panel member of the Farm Scale Evaluations) saying the results were 'dramatic' in the evidence that '[t]here will be less food for birds' (*The Guardian* 17 October 2003: 4).

The science journalist Andy Coghlan, writing in *New Scientist*, observed that in contrast to the balance of farming and wildlife in UK and Europe, farmers in the US and Australia use powerful broad-spectrum weedkillers to create

fields sterilized of everything except the crop. Farmland there is purely for business, and if people want to see wildlife, they can visit national parks. But in Europe, farmland is used for leisure as well as producing food, and conservationists want farmers to be kinder to what wildlife remains (*New Scientist* 18 October 2003: 8).

Coghlan added the UK has witnessed a 'catastrophic decline' in a number of bird species since WWII with modern agriculture's expansion of field sizes at the expense of

hedgerows, the use of agro-chemicals, and the increase in winter crops, that remove fallow sequences.

Counter arguments were presented in the conservative Daily Telegraph. Its editorial contended that risks from GM crops were no greater than with what had happened with ‘conventional crops over the last 9,000 years’, and that anti-GM ‘feeling’ is simply motivated by ‘fear of the new’ (*The Daily Telegraph* 17 October 2003: 27). The Independent’s show of balanced coverage included the claim from Paul Ryllott of the Agriculture Biotechnology Council that ‘this evidence reiterates commercial experience from around the world, that GM crops are more flexible and can enhance biodiversity’ (*The Independent* 17 October 2003:5). Key to this argument was the finding that of the crops trialled, growing GM maize was less damaging to wildlife than ‘conventional’ maize, that required especially powerful weedkillers.

The Daily Mail quoted the Environment minister Elliot Morley restating the legally determined position regarding withdrawal of approval for the new crops: ‘GM crops can only be grown if they get consent. Whether they get consent depends on whether there are environmental impacts’ (*The Daily Mail* 17 October 2003: 6). Anthropologists will be interested to see how the social aspects of technology assessment become compartmentalized as separate from environmental ones. The effects of this boundary making are powerful in giving priority to scientific realism, that establishes as more solidly reliable, a foundational domain of nature and biology, that can also be recognized as operating in the area of assisted human reproduction. As with the latter, one might expect to find all manner of relational enfoldings, entwinings, and entanglements of tactics and representations that blur dichotomous views of nature and culture. In this area, Edwards (Introduction) draws attention to ‘boundary objects’ whose ambivalent relationship to purified versions of nature or culture provides people with opportunities for innovative practices of living and ‘kinning’. Another effect of the enforced compartmentalisation of environmental truth and value fenced off from relationships of social and political ‘domains’, is to let loose symbolic inflections of the environmental as

implying narratives of the social and political in analogical refractions of moral responsibility. Issues of metaphor and likenesses of kinship will be taken up later.

The final component to think about in the media stories is transgenic pollination. Here we see the pollen spores of modified crops seeking out relatives in the British countryside. The Farm Scale Evaluations had not actually investigated this dimension of GM crops, but a study from the Department of Environment and Rural Affairs had just been published before the FSE report. It had found that GM pollen from oilseed rape had travelled distances of over 25 kms, and would be likely to cross-fertilize with *Brassica rapa*, the wild turnip or ‘bargeman’s cabbage’ (*Farmer’s Guardian* 17 October 2003: 7). It is these modified genes going ‘feral’ and roaming freely to breed with native species, that has prompted talk in the newspapers of herbicide- or insect-resistant ‘superweeds’. The *Farmer’s Guardian* quoted a Friends of the Earth spokesperson: ‘We would be starting a huge outdoor experiment’ (ibid: 7). In contrast to ‘alarmist’ interpretations, an industry spokesman said the research on cross-pollination, ‘merely confirms well-documented evidence that natural hybridisation between the species occurs at very low levels’ (ibid: 7).

In recognising that some GM crops have evolutionary relatives, and that genetically compatible alliances could be made ‘in nature’ beyond the intentions of biotechnological design, (with the modified genes giving rise to consequences in species’ evolution bearing the trace of humanly selected traits), the language of kinship used by geneticists and anthropologists is commingled. Biotechnologists, as evidenced by the spokesman quoted above, oscillate between the familiar normalising language of biology as the routine inevitability of life processes, and the transformational artifice of using genetic traits in novel combinations to human advantage. Haraway remarks that transgenic organisms ‘simultaneously fit into well established taxonomic and evolutionary discourses and also blast widely understood senses of natural limit’ (1997: 56). Further, she pursues the substantialized power, and hybrid agency of recombinant DNA life forms, commenting that ‘refiguration of the kinship between different orders of life, the generative splicing of synthetic DNA and money produces promising genetic fruit’

(1997:66). Her use of 'kinship' both mocks continuing ideological assumptions of naturalness, and draws attention to how the reproduction of humans, creatures, and machine life has shifted beyond conventional parameters of fertility.

In biotechnology's discourse of GM crops not endangering biodiversity at large, insisting on the 'substantial equivalence' of GM and conventional foods, and arguing against the need for boundaries to limit cross-contamination with non-GM or organic farms, it argued for a case-by-case assessment of the new crops, rather than a verdict on GM *per se*. To deny the possibility of GM plants' sexual reproduction with wild relatives is comparable to strategies of kinship 'truncation', noticed in practices of selective solidarity. The motive of denying kinship with wild plants, of arguing that the transgenic crops are containable for human purposes, and will not form hybrid kin associations, is a recognizable 'officializing strategy' (Bourdieu 1977) to privilege certain networks of relatedness over others.

The media's treatment of the release of the Farm Scale Evaluations was noticeably deferential to the language of science. (It was mostly left to the cartoonists to bring out more imaginative and transgressive views of how nature, society, money and politics were simultaneously at play in the process of assessing GM crops.) Such was the effectiveness of separating out environmental science from 'ethical' and 'economic' categories of public concern, that statements about "less food for birds" were not contextualized within the register of science, by arguments that the hungry of the world needed feeding. (These arguments resurfaced when government decisions were taken). The newspapers dramatized the science of wildlife loss, but did not explore the relationship of field ecology and society, other than as a choice about economic or biodiversity values. Ecological science was imagined to speak for itself, or to stand as a view on what was happening 'out there', with the issue of people's relationship to the landscape silently contained. This could reflect the distance of protected authenticity by which Descola (1996, 2005) has characterized Western relationships of 'naturalism' towards the environment. Science was very effectively kept apart from any visibility of emotional or other relational connections people might have with springtails, skylarks, or

corn buntings. The environment was there to be seen and taken in as a contained and knowable system, but it missed the element of human presence, apart from tractor drivers, or commentators with a scientific or economic stake.

It thus appeared as the introduction of a different order of knowledge, when a personalized human dimension of interactive and subjective presence relating to this threatened ecology cropped up in a corner of the media. It came in the figure of Les Firbank, the scientific leader of the Farm Scale Evaluations. Interviewed in the *New Scientist*, he revealed a kinship connection with the British farming landscape. Raised on a small farm in the county of West Yorkshire, his PhD was a study of the population dynamics of an arable weed (the corncockle). He described his family's direct experience of ecological change:

I can remember a period when I was a kid in Yorkshire when we had cowslips all over the farm. By the time I was 10 most of them had gone. We thought it was just one of those things. We had no idea it was because of the way we were managing the land. We had put too much manure on it. ***As a family we didn't want to do any harm.*** That issue – how to balance farming and wildlife – has always driven my research interests. (My emphasis, 25 October 2003:46).

So at last a human dimension that involves a very conventional 'kinship' – a family with a livelihood of interaction with fields, animals and plants - is made to appear as key to the motivation of the chief scientist, that enfolds, entwines and entangles a scientist's reflexive practice with a relational context of human and non-human conviviality. The *Scotsman* newspaper encapsulated a conscientious relationship to the farming landscape by using an old-fashioned English term of ethically instrumental kinship with the land – 'good husbandry'.

Discussion

As Firbank and others made clear, it was really the herbicides that were on trial for their environmental harm, rather than the crops modified to resist them. The genes were only

part of a weedkiller management package, whose impact on a range of environmental issues, such as protection of birds and organic farming, constructed particular lines of opposition. Issues of boundaries and their transgression (between nature and society, GM and non-GM, profit and biodiversity) loomed large in these debates, and confirm Franklin's insistence on looking at 'boundary work' performed in the maintenance of kinship, gender and 'the marketing of these lines, species, and families of products' (2001:315). The biotechnology industry and the organic certification business are equally involved in the politics of redefining commodities, consumer wishes, markets and nature. Boundaries are not present without categorical labour to make them evident, and boundaries of different orders play off each other: from criteria of food labelling, to crop planting limits drawn on the ground. It was noticeable how the image of Britain as a 'small, windy island' with a closely interdependent farmland and human population, served to differentiate topologies for intensive agriculture between the US with its vast, open prairies and UK conditions. The territorial mosaic of farmland and wildlife habitat use-purposes in the UK was too mixed-up for any simple implementation of protective separation distances between GM and non-GM.

My argument is that an extra-human relatedness (a kin-like analogy) was actualized in the conflict over GMOs when food production for humans was presented starkly as a lethal loss of food for biodiversity. When people were confronted with the prospect of a diminished 'nature' no longer autonomous, and when the regenerative capacity of the soil and the creatures living from it was made negotiable, and brought into a deliberative public sphere, latent solidarities of interest projected across the human/non-human divide. The 'kinship' resonances of GMOs have to be recovered from noises and silences. The media's response to knowledge about threats to farmland wildlife respected the narrative power of scientific expertise in descriptions of the natural food chain. The newspapers were entranced by this depiction of another world, that humans could appreciate at a relation of respectful distance. The lay-expert divide appeared to be credible in a moment of awe displayed in the face of the extent and content of what the research had discovered. But the scientific frame did not for long hold the discursive bounds of the

debate over GM. Four months later, Clare Devereux of the Five Year Freeze coalition commented:

The government just does not get it. The public is way ahead in understanding that agricultural biotechnology is about a lot more than just the science. It is about livelihoods, choice, culture, the biodiversity of our landscape, the survival of small farmers – and GM crops could potentially threaten all of these (*Guardian* 20 February 2004:8).

Earlier, I touched on the debate about totemism in anthropology. Clearly, the relationship of wildlife to people in contemporary Britain is not operating on the same kind of grounds as is found in kinship practices organising moiety affinities around non-human identity hooks.³ What kind of otherings and proximity with the non-human can instead be discussed?

Lévi-Strauss (1962) presented so-called totemic phenomena as a variety of ways for organizing relations between people via languages of non-human differentiation (it was the differences between differences of kind that resembled each other). Metonymic identifications are not the issue – with totemism or GMO opposition. But nor will ‘metaphoric’ kinship serve the purpose of the argument here. For Ingold (1996), metaphor depends on a pre-structured separation of nature from culture, that fails to attend to how people and environments interact. Human affinities with the natural world are more than tokens of signifying convention.

The birds, butterflies and bees of UK farmland, I would argue, became *in a process of implication* the imagined community of the British people. Their presence and their relationships of countryside interaction, haunt the gaps in the reporting of the scientific evaluations, through a long-standing cultural and scientific relationship with field ecology. The image of the ‘entangled bank’ is pertinent here, that Darwin referred to in *The Origin of Species*, with its ‘singing, flittering flow of creatures’ and their ‘hidden

³ See Wagner (1977) for an analysis of one such kinship system in New Guinea, which takes ‘analogical’ flows of ideas about care and responsibility to explain the work of maintaining appropriate distinctions between categories of kin.

bonds of descent'. Feeley-Harnik (n.d.) asks again Radcliffe-Brown's question when pondering the totemic puzzle, 'why all these birds?' His answers, she argues, were overly socio-centric, neglecting the cross-species bonds of sociality. The importance of birds to Darwin (e.g. Galapagos finches, and the genealogy of the European rock dove) came from an interest in the intimate kinship between humans and birds in con-social dwelling. In particular it was the rearing of 'fancy' pigeon breeds by handloom silkweavers in London, and their expert eyes for selecting iridescence of plumage for trait enhancement, which provided Darwin with the idea of modifying the weavers' 'artificial selection' to become his 'natural selection'.

Feeley-Harnik argues that since before Darwin's time there has been a sensitivity to bio-geographical change through avian imagery, in which birds have acted as significant markers of transforming ecologies. (Remember the Labour government had made birds a 'quality of life indicator'). I imagine people in boardrooms of biotech companies after the trials, asking Radcliffe-Brown's question 'why all these birds?' The farm ecology on which the GM evaluations were performed was a social terrain on which the British, and their multinational corporate cousins would have to negotiate over their novel plant familiars' rights for co-residence ('in a small island'). The acceptability of laboratory-modified, vegetable quasi-cousins were here linked to the fate of soil organisms, wild seed dispersal, and the survival within agri-culture of fat hen, springtails, corn buntings and skylarks.

Science can be a form of politics by other means (Latour 2004), but its power lies in presenting a world of fact beyond particular value perspectives. As social, cultural, and other consequences of GM farming were credited less authority for policy making than scientific evidence, the creatures of farmland bio-diversity substituted to make a sociality of life, photosynthesis, and controlled ecological competitiveness acquire a narrative of moral-political judgement about changing times. The sub-liminal substitution of British rural (human) communities and wider consumers for the fate under biotech management of the mini-beasts, bugs, and weeds is more than a *metaphorical* association. The GM crop trials reactivated an old relationship of mutual attendance between people and birds,

but now in terms of the language of technological choice, or the deliberative ‘share’ between agriculture and biodiversity.

There is no single British, or even English cultural relationship with birds and the countryside. and indeed the important fact is the diversity of actors and discourses contending with each other in environmental politics. The anti-GM coalition ranged from Prince Charles, mainstream conservation organisations and neo-pagans, through to anti-capitalists. However, as a general cultural process, a permeability of the language of care, protection and nurturance across the human/non-human divide is on the increase. This is apparent in the transfer of the language of compassionate ‘adoption’ to non-humans (gorillas, whales etc.). An anti-vivisection campaign poster in 2006 features a laboratory monkey’s face beneath a plea for ‘Next of Kin’. To non-British people, this can appear to be a distinctive national attitude. The film maker Kusturica made a kinship analogy, angered about a scene cut by the British censor, where a cat attacked a pigeon. A journalist put to him that ‘You don’t realize what an emotive issue pigeons are in England’. Kusturica responded

‘Was [the censor] brought up by pigeons or something?’ He continued, ‘What is the problem with you English? You killed millions of Indians and Africans, and yet you go nuts about the circumstances of the death of a single Serbian pigeon. I am touched you hold the lives of Serbian birds so dear, but you are crazy. I will never understand how your minds work.’ (*The Guardian* 4 March 2005).

Conclusion

In talking about posthuman kinship my purpose has been to recognize the junctures of human fertility history, and to talk of a parallel realisation that the way anthropologists have pursued the question of ‘what is kinship all about?’ in the West has tended to ignore the value of looking at how kinship is not simply about humans. Even if divides are maintained in a common sense way between humans and non-humans, both the contexts in which human kinship is lived out, and the consideration given to animals and plants as

adjuncts, instruments and embodiments of familial intentionality deserve recognition. Kinship always needs to be placed in context, including those involving non-human interactions. Otherwise relatedness is ideologically divorced from the embodied conditions in which terms of connection are actually lived: the activities of making home, caring for relatives through affection bestowed on kinspeople's pets, and the symbolic work performed by celebrating, for example, home-produced food, or taking a 'family walk' in a country park, or visiting a place where a relative grew up. If the comparative study of kinship is not to be confined to culturally specific definitions, it deserves to be viewed as a creative technology for making relations of solidarity, desire, and exchange.

Whereas kinship served in modern anthropology to differentiate the internal organisation of disparate systems of socio-cultural reproduction, the contexts in which relatedness now operates demand new parameters of thought. Arguments about the naturalized grounding of kinship in biology, as Franklin (2001) points out, need to take account of how biology has shifted. How biology offers resources for thinking who we are, (both as social actors, and as anthropologists), and how we understand our interactions as substantial flows with effects on hosts of humans and non-humans, brings relational subjectivity in confluence with governance, technology, social movements, and the global economy.

GM evaluation in the UK produced a refracted illumination of these relations, made visible through their opacity in a biological vision of the non-human world in suspension from directly human concerns. It was a suspension made possible by a combination of the authority of science to speak disinterestedly (and to surprise expectations), with the notion of the ecosystem as a measurable system of relations. GM technology was assessed for its impact on the non-human environment, to make informed decisions about environmental implications for birds, and people. Eco-system biology managed a containment of technological cause and effect within a strictly material world, to produce a prediction of consequences to be subsequently processed through evaluative systems of a different order: global food politics, social demands for countryside protection, and concerns for the survival of non-GM farming. Human exceptionalism to the natural world was thus instantiated in terms of what could be impartially known, distinct from

processes of deciding on GM technology that were situated within a domain of competing and contingent values. In these respects it would hardly be possible to find as clear an example of Descola's (2005) cosmology of modern naturalism. It is the incompleteness of the naturalist ontology to account for the responses of extra-human connection evidenced by the newspapers' reporting of the GM trials, that makes the idea of a human exceptionalist cosmology hard to sustain.

My central point has been to suggest that this starkly di-morphic organisation of knowledge for technological governance produced conditions for an analogical identifications across the human/non-human divide. The vision of imperilled wildlife was met with a reciprocal articulation of ethical responsibility. While there are possibilities for anthropological explanation of this response within what has conventionally been taken as kinship (for instance the con-social intimacies of Darwin's weaver families and their doves, or the experience of land-family relationships revealed by the farm trials coordinator Les Firbank), I want to emphasize how genetic knowledge of humans, non-humans, and humanly modified organisms re-situates how we can think of ourselves relationally to the non-human world.

The impact of genetic knowledge and technology has been frequently described in hyperbolic language. Woolfson, for instance, proclaims that with the discovery of evolutionary process through genetic variation '[I]n an instant, the erosion of mankind's innocence was complete' (2004: 46). In his book *An Intelligent Person's Guide to Genetics* he also concludes

If every aspect of our behaviour is shaped to some extent by our genetic programming, artificial modifications of these programs should enable key aspects of ourselves – including our shape, lifespan, intelligence, sense of equality, capacity for compassion, love, sexuality, empathy, aesthetics, justice and morality, all once assumed to be inviolable aspects of our humanity – to be modified or reconfigured from first principles. (*ibid*: 204.).

My angle is to suggest that confident human exceptionalism, as species-specific biological, moral, and subjective alterity to the rest of nature is over, even if not in the mechanistic terms Woolfson proposes. This prompts us to look at our shared genomic similarities with other species, and our continuing influence on the evolution of non-human organisms (Pollan 2001), as well as the increasing possibilities for tweaking the normal flow of fertility events. Evidence for fractured boundaries of the human comes in the multiple arenas where boundary making of human and non-human is now being asserted. The UK's Human Fertilisation and Embryology act, for example, has several references to experimental hamster fertilisation and embryology, and the legal requirement not to let more than a minimal number of cells develop. But in artistic works too, the moral exceptionalism of humanity in relation to animals has become a theme that is being examined in radical ways, for instance, in terms of analogies between genocide and the treatment of animals (Coetzee 1999), and in terms of sexuality (Albie 2004).⁴

The 'End of History' author Fukuyama uses genetics to berate Leftist thought for imagining infinite possibilities for people to change the conditions they are born into, but argues history is, after all, continuing with genetic advances. His worry is that

biotechnology will cause us in some way to lose our humanity – that is, some essential quality that has always underpinned our sense of who we are and where we are going, despite all of the evident changes that have taken place in the human condition through the course of history. Worse yet, we might make this change without recognizing that we had lost something of great value. We might thus emerge on the other side of a great divide between human and posthuman history and not even see that the watershed had been breached because we lost sight of what that essence was. (2002: 101).

Fukuyama (a proponent of regulation), and Woolfson (an inevitablist),⁵ fill the analysis of the future with machines and protected essences. My argument is that neither machine

⁴ Edward Albie's play *The Goat or 'Who is Sylvia?'* explores aspects of innocence and horror in a man's revealed love for a goat, and the limits to the tolerance of desire within a modern family.

⁵ Woolfson comments "The largely irrational urge to preserve our current incarnation unchanged is no different from wanting to keep red telephone boxes or milkmen" (2004: 207).

nor essence encapsulates what being a human is all about, and that rather than the question ‘who is a relative?’, the question ‘how do I relate to you?’ (whether staring in the eyes of an IVF infant, a goat, or at a genetically modified tomato on the supermarket shelf), will continue to perplex, and produce differentiation, in new and unpredictable ways. This framing points kinship in the direction of asking how, and for what purposes, are people making analogies and solidarities with other beings, and how are genetic and relational discourses articulated, or muted, in competing knowledge registers when a particular conflict becomes characterized as centred on genetics? For Descola, genetics has cosmologically enhanced the scientifically knowable unity of the external physical world, while human interiorities generate an unmanageable diversity of value systems. In this chapter I have attempted to demonstrate recalcitrant analogical connections among moderns. Despite Descola’s naturalist cosmology, they have (1) practices of family and relational identity that confound the brute segregation of human and non-human, and (2) the prospect of reduced wildlife in genetically modified agriculture evinced a co-citizenship (contra Descola 2005:542) with non-human others in a post-exceptional image. This was not so much the ‘lost innocence’ that Descola speaks of, but a new visualisation of relationships that drags the silent nature of naturalism from its condition of mute insentience (admittedly by excessively human interventions), and now asks what kind of ties with the population of ‘the inanimate’ might be envisageable.

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